



SEQUENCE LISTING

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<120> T Helper Cell Epitopes

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<170> PatentIn version 3.1

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<211> 17

<212> PRT

<213> synthetic CDV peptide P2

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Ser Ser Lys Thr Gln Thr His Thr Gln Gln Asp Arg Pro Pro Gln Pro
1 5 10 15

Ser

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<211> 17

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Gln Pro Ser Thr Glu Leu Glu Glu Thr Arg Thr Ser Arg Ala Arg His
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Ser

<210> 3

<211> 17

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Arg His Ser Thr Thr Ser Ala Gln Arg Ser Thr His Tyr Asp Pro Arg
1 5 10 15

Thr

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<213> synthetic CDV peptide P8

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Pro Arg Thr Ser Asp Arg Pro Val Ser Tyr Thr Met Asn Arg Thr Arg
1 5 10 15

Ser

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Thr Arg Ser Arg Lys Gln Thr Ser His Arg Leu Lys Asn Ile Pro Val
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His

<210> 6
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<213> synthetic CDV peptide P24

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Ser His Gln Tyr Leu Val Ile Lys Leu Ile Pro Asn Ala Ser Leu Ile
1 5 10 15

Glu

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Ile Gly Thr Asp Asn Val His Tyr Lys Ile Met Thr Arg Pro Ser His
1 5 10 15

Gln

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Tyr Lys Ile Met Thr Arg Pro Ser His Gln Tyr Leu Val Ile Lys Leu
1 5 10 15

Ile

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<213> synthetic CDV peptide P25

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Lys Leu Ile Pro Asn Ala Ser Leu Ile Glu Asn Cys Thr Lys Ala Glu
1 5 10 15

Leu

<210> 10
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<212> PRT
<213> CDV peptide P27

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Ala Glu Leu Gly Glu Tyr Glu Lys Leu Leu Asn Ser Val Leu Glu Pro
1 5 10 15

Ile

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<212> PRT
<213> synthetic CDV peptide P28

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Lys Leu Leu Asn Ser Val Leu Glu Pro Ile Asn Gln Ala Leu Thr Leu
1 5 10 15

Met

<210> 12
<211> 17
<212> PRT
<213> CDV peptide P29

<400> 12

Glu Pro Ile Asn Gln Ala Leu Thr Leu Met Thr Lys Asn Val Lys Pro
1 5 10 15

Leu

<210> 13
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<212> PRT
<213> synthetic CDV peptide P33

<400> 13

Phe Ala Gly Val Val Leu Ala Gly Val Ala Leu Gly Val Ala Thr Ala
1 5 10 15

Ala

<210> 14
<211> 17
<212> PRT
<213> CDV peptide P34

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Gly Val Ala Leu Gly Val Ala Thr Ala Ala Gln Ile Thr Ala Gly Ile
1 5 10 15

Ala

<210> 15
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<212> PRT
<213> synthetic CDV peptide P35

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Thr Ala Ala Gln Ile Thr Ala Gly Ile Ala Leu His Gln Ser Asn Leu
1 5 10 15

Asn

<210> 16

<211> 17

<212> PRT

<213> CDV peptide P36

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Gly Ile Ala Leu His Gln Ser Asn Leu Asn Ala Gln Ala Ile Gln Ser
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Leu

<210> 17

<211> 17

<212> PRT

<213> synthetic CDV peptide P37

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Asn Leu Asn Ala Gln Ala Ile Gln Ser Leu Arg Thr Ser Leu Glu Gln
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Ser

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<211> 17

<212> PRT

<213> CDV peptide P38

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Gln Ser Leu Arg Thr Ser Leu Glu Gln Ser Asn Lys Ala Ile Glu Glu
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Ile

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<211> 17

<212> PRT

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Glu Gln Ser Asn Lys Ala Ile Glu Glu Ile Arg Glu Ala Thr Gln Glu
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Thr

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<212> PRT

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Thr Glu Leu Leu Ser Ile Phe Gly Pro Ser Leu Arg Asp Pro Ile Ser
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Ala

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Pro Arg Tyr Ile Ala Thr Asn Gly Tyr Leu Ile Ser Asn Phe Asp Glu
1 5 10 15

Ser

<210> 22
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<212> PRT
<213> CDV peptide P68

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Cys Ile Arg Gly Asp Thr Ser Ser Cys Ala Arg Thr Leu Val Ser Gly
1 5 10 15

Thr

<210> 23
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<212> PRT
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Asp Glu Ser Ser Cys Val Phe Val Ser Glu Ser Ala Ile Cys Ser Gln
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Asn

<210> 24
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Thr Ser Thr Ile Ile Asn Gln Ser Pro Asp Lys Leu Leu Thr Phe Ile
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Ala

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Ser Pro Asp Lys Leu Leu Thr Phe Ile Ala Ser Asp Thr Cys Pro Leu
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Val

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Ser Gly Arg Arg Gln Arg Arg Phe Ala Gly Val Val Leu Ala Gly Val
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Ala

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<211> 662

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<213> CDV fusion protein

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Met His Arg Gly Ile Pro Lys Ser Ser Lys Thr Gln Thr His Thr Gln
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Gln Asp Arg Pro Pro Gln Pro Ser Thr Glu Leu Glu Glu Thr Arg Thr
20 25 30

Ser Arg Ala Arg His Ser Thr Thr Ser Ala Gln Arg Ser Thr His Tyr
35 40 45

Asp Pro Arg Thr Ser Asp Arg Pro Val Ser Tyr Thr Met Asn Arg Thr
50 55 60

Arg Ser Arg Lys Gln Thr Ser His Arg Leu Lys Asn Ile Pro Val His
65 70 75 80

Gly Asn His Glu Ala Thr Ile Gln His Ile Pro Glu Ser Val Ser Lys
85 90 95

Gly Ala Arg Ser Gln Ile Glu Arg Arg Gln Pro Asn Ala Ile Asn Ser
100 105 110

Gly Ser His Cys Thr Trp Leu Val Leu Trp Cys Leu Gly Met Ala Ser
115 120 125

Leu Phe Leu Cys Ser Lys Ala Gln Ile His Trp Asp Asn Leu Ser Thr
130 135 140

Ile Gly Ile Ile Gly Thr Asp Asn Val His Tyr Lys Ile Met Thr Arg
145 150 155 160

Pro Ser His Gln Tyr Leu Val Ile Lys Leu Ile Pro Asn Ala Ser Leu
165 170 175

Ile Glu Asn Cys Thr Lys Ala Glu Leu Gly Glu Tyr Glu Lys Leu Leu
180 185 190

Asn Ser Val Leu Glu Pro Ile Asn Gln Ala Leu Thr Leu Met Thr Lys
195 200 205

Asn Val Lys Pro Leu Gln Ser Leu Gly Ser Gly Arg Arg Gln Arg Arg
210 215 220

Phe Ala Gly Val Val Leu Ala Gly Val Ala Leu Gly Val Ala Thr Ala
225 230 235 240

Ala Gln Ile Thr Ala Gly Ile Ala Leu His Gln Ser Asn Leu Asn Ala
245 250 255

Gln Ala Ile Gln Ser Leu Arg Thr Ser Leu Glu Gln Ser Asn Lys Ala
260 265 270

Ile Glu Glu Ile Arg Glu Ala Thr Gln Glu Thr Val Ile Ala Val Gln
275 280 285

Gly Val Gln Asp Tyr Val Asn Asn Glu Leu Val Pro Ala Met Gln His
290 295 300

Met Ser Cys Glu Leu Val Gly Gln Arg Leu Gly Leu Arg Leu Leu Arg
305 310 315 320

Tyr Tyr Thr Glu Leu Leu Ser Ile Phe Gly Pro Ser Leu Arg Asp Pro
325 330 335

Ile Ser Ala Glu Ile Ser Ile Gln Ala Leu Ile Tyr Ala Leu Gly Gly
340 345 350

Glu Ile His Lys Ile Leu Glu Lys Leu Gly Tyr Ser Gly Ser Asp Met
355 360 365

Ile Ala Ile Leu Glu Ser Arg Gly Ile Lys Thr Lys Ile Thr His Val
370 375 380

Asp Leu Pro Gly Lys Phe Ile Ile Leu Ser Ile Ser Tyr Pro Thr Leu
385 390 395 400

Ser Glu Val Lys Gly Val Ile Val His Arg Leu Glu Ala Val Ser Tyr
405 410 415

Asn Ile Gly Ser Gln Glu Trp Tyr Thr Thr Val Pro Arg Tyr Ile Ala
420 425 430

Thr Asn Gly Tyr Leu Ile Ser Asn Phe Asp Glu Ser Ser Cys Val Phe
435 440 445

Val Ser Glu Ser Ala Ile Cys Ser Gln Asn Ser Leu Tyr Pro Met Ser
450 455 460

Pro Leu Leu Gln Gln Cys Ile Arg Gly Asp Thr Ser Ser Cys Ala Arg
465 470 475 480

Thr Leu Val Ser Gly Thr Met Gly Asn Lys Phe Ile Leu Ser Lys Gly
485 490 495

Asn Ile Val Ala Asn Cys Ala Ser Ile Leu Cys Lys Cys Tyr Ser Thr
500 505 510

Ser Thr Ile Ile Asn Gln Ser Pro Asp Lys Leu Leu Thr Phe Ile Ala
515 520 525

Ser Asp Thr Cys Pro Leu Val Glu Ile Asp Gly Ala Thr Ile Gln Val
530 535 540

Gly Gly Arg Gln Tyr Pro Asp Met Val Tyr Glu Gly Lys Val Ala Leu
545 550 555 560

Gly Pro Ala Ile Ser Leu Asp Arg Leu Asp Val Gly Thr Asn Leu Gly
565 570 575

Asn Ala Leu Lys Lys Leu Asp Asp Ala Lys Val Leu Ile Asp Ser Ser
580 585 590

Asn Gln Ile Leu Glu Thr Val Arg Arg Ser Ser Phe Asn Phe Gly Ser
595 600 605

Leu Leu Ser Val Pro Ile Leu Ser Cys Thr Ala Leu Ala Leu Leu

610

615

620

Leu Ile Tyr Cys Cys Lys Arg Arg Tyr Gln Gln Thr Leu Lys Gln His
625 630 635 640

Thr Lys Val Asp Pro Ala Phe Lys Pro Asp Leu Thr Gly Thr Ser Lys
645 650 655

Ser Tyr Val Arg Ser Leu
660

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<211> 10

<212> PRT

<213> synthetic LHRH 1-10 peptide

<220>

<221> MOD_RES

<222> (1)..(1)

<223> PYRROLIDONE CARBOXYLIC ACID

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Glu His Trp Ser Tyr Gly Leu Arg Pro Gly
1 5 10

<210> 29

<211> 9

<212> PRT

<213> synthetic LHRH 2-10 peptide

<400> 29

His Trp Ser Tyr Gly Leu Arg Pro Gly
1 5

<210> 30

<211> 27

<212> PRT

<213> snythetic control peptide comprising a T-helper epitope of influenza virus

<400> 30

Ala Leu Asn Asn Arg Phe Gln Ile Lys Gly Val Glu Leu Lys Ser Asn
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Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro
20 25